

PROGRAM CHARTER FOR SURFACE WEATHER PROGRAM

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1. EXECUTIVE SUMMARY

Current weather infrastructure and models support good regional weather forecasts for many public safety purposes. To mitigate the adverse impacts of localized weather conditions near the surface, travelers need weather advisories based on timely, finer localized weather observations along the Nation's highways and roads to facilitate informed traveling decisions. The Surface Weather Program, under NOAA's Commerce and Transportation Mission Goal, will work with the transportation sector to ensure travelers and decision makers receive timely weather and hazard information on a scale that supports improvements to safe and efficient transportation.

The impacts of adverse weather, annually, on the Nation's highway system and roads are significant: 7,400 weather-related deaths; 1.5 million weather-related crashes; More than 700,000 weather-related injuries; \$42 billion in economic loss (Department of Transportation Statistics, 2004). Local effects such as fog, rain, blowing and drifting snow, ice, high winds smoke, and other hazardous weather and weather-enhanced conditions can impact travel conditions with very short notice. In addition to the tragic loss of life, there are also significant delays in arrivals of people and goods (trucking, rail, transit, pipeline, ferry and airport ground transportation factors), resulting in economic costs.

In 1998, the Federal Committee for Meteorological Services and Supporting Research (FCMSSR) identified weather information needs of surface transportation sectors as a priority for coordinated action. The committee report defined a strategy to reduce safety risks and economic costs while optimizing the efficiency of the surface transportation network.

NOAA's Surface Weather Program has developed partnerships with DOT's Federal Highway Administration (FHWA) and Intelligent Transportation Systems of America (ITSA; a public/private consortium focused on surface transportation safety and efficiency). These partnerships have resulted in demonstration projects to develop and assess data, information and dissemination capabilities to mitigate weather-related crashes and delays. Research and development needs and efforts apply to all surface transportation modes but will focus on highways as a priority and for prototype purposes. Additional information on the Surface Weather Program is available on-line at:

<http://surfaceweather.noaa.gov/>

2. PROGRAM REQUIREMENTS

A. Requirement Drivers:

1. **NWS Organic Act (15 U.S.C. § 313)** - directs NOAA's National Weather Service to forecast weather, issue storm warnings, collect and transmit marine intelligence for the benefit of commerce and navigation, report temperature, rainfall conditions, and take such meteorological observations as may be necessary to establish and record the climate conditions of the United States.
2. **Inland Flood Forecasting and Warning System Act of 2002 (15 U.S.C. § 313c)** – authorizes NOAA to improve the capability to accurately forecast inland flooding, including flooding

- caused by coastal and ocean storms, through research and modeling, training, and outreach.
3. **The Federal Emergency Management Agency's (FEMA) Federal Response Plan (FRP, April 1999)** - implements the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (42 U.S.C. 5121, et seq.) The FRP tasks the Department of Commerce (DOC) with acquiring and disseminating weather data, forecasts, and emergency information, providing information on natural resources, predicting pollution movement, and providing information on meteorological, hydrological, ice, and oceanographic conditions.
 4. **2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFTEA-LU; Public Law No: 109-059)** – signed August 10, 2005, includes direction to the Secretary of Transportation to “consult with the National Oceanic and Atmospheric Administration...” on establishing and maintain a road weather research and development program.
 5. **Memorandum of Understanding between NOAA and FHWA** – signed July 20, 2005 between agency Administrators, the agreement fosters effective coordination between NOAA’s environmental data management, leadership for the integration and distribution of transportation-relevant observations, data assimilation and warning advances and the Federal Highway Administration’s transportation research expertise, outreach and relationship with the surface transportation community.

B. Mission Requirements:

- Provide high resolution, quality-controlled, and standard formatted data to increase lead time and accuracy for weather and water warnings and forecasts, improve predictability of the onset, duration, and impact of hazardous and severe weather and water events, and increase the development, application, and transition of science and technology advances to operations and services. (Requirement Drivers 1-4, and 6)
- Provide a data management system provided to facilitate the increased coordination of weather and water information and services and integration of local, regional, and global observation systems. (Requirement Drivers 1-6)
- Aid in warning and forecast efforts to reduced loss of life, injury, and damage to the economy, on the Nation’s surface transportation system, by facilitating timely and more valuable weather and water information to support improved decisions. (Requirement Drivers 1-6)
- Provide data for the development and implementation of sophisticated assessment and prediction techniques, products, and services to support decisions on aviation, marine, and surface navigation efficiencies; coastal resource management; and transportation system management, operations, and planning. (Requirement Drivers 1-6)
- Build a broad-based and coordinated education and outreach program toward a greater understanding of the impacts of weather and water on the Nation’s surface transportation system. (Requirement Drivers 1-3, 5-6)

3. LINKS TO THE NOAA STRATEGIC PLAN

The Surface Weather program enables the Commerce and Transportation and Weather and Water Mission Goals to achieve outcomes, objectives, and strategies addressing the observations, forecasts, and warnings for the surface transportation sector, and the surface portion of the United States intermodal transportation system.

A. Goal Outcomes:

- Commerce and Transportation Mission Goal:
 - Safe, secure, efficient, and seamless movement of goods and people in the U.S. Transportation System
 - Environmentally sound development and use of the U.S. Transportation System

- Weather and Water Mission Goal:
 - Reduced loss of life, injury, and damage to the economy
 - Better, quicker, and more valuable weather and water information to support improved decisions
 - Increased customer satisfaction with weather and water information and services

B. Goal Performance Objectives:

- Commerce and Transportation Mission Goal:
 - Reduce weather-related transportation crashes and delays
 - Reduce human risk, environmental, and economic consequences resulting from natural or human-induced emergencies
 - Enhance navigational safety and efficiency by improving information products and services
- Weather and Water Mission Goal:
 - Increase application and accessibility of weather and water information as the foundation for creating and leveraging public (i.e., Federal, state, local, tribal), private and academic partnerships
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 - Increase lead time and accuracy for weather and water warnings and forecasts

C. Goal Strategies

- Commerce and Transportation Mission Goal:
 - Expand and enhance advanced technology monitoring and observing systems, such as weather and oceanographic observations, ice forecasts and nowcasts, hydrographic surveys, and precise positioning coordinates, to provide accurate, up-to-date information
 - Develop and apply new technologies, methods, and models to increase the capabilities, efficiencies, and accuracy of transportation-related products and services
 - Develop and implement sophisticated assessment and prediction techniques, products, and services to support decisions on aviation, marine, and surface navigation efficiencies; coastal resource management; and transportation system management, operations, and planning
 - Build public understanding of the science and technology involved and the role of the environment in commerce and transportation through outreach, education, and industry collaboration
- Weather and Water Mission Goal:
 - Improve the reliability, lead-time, and effectiveness of weather and water information and services that predict changes in environmental conditions
 - Integrate an information enterprise that incorporates all stages from research to delivery, seeks better coordination of employee skills and training, and engages customers
 - Develop and infuse research results and new technologies more efficiently to improve products and services, streamline dissemination, and communicate vital information more effectively

4. PROGRAM OUTCOMES

A reduction in weather-related crashes on the Nation's highway system and roads, and safe and efficient travel, operations, and decision-making on the Nation's highway system, through transition of a National Surface Weather Observing System into operations and related outreach and education with external users.

5. PROGRAM ROLES AND RESPONSIBILITIES

This program is established and managed with the procedures established in the NOAA Business Operations Manual (BOM). Responsibilities of the Program Manager are described in the BOM. Responsibilities of other major participants are summarized below:

A. Participating Line Office, Staff Office, and Council Responsibilities:

1. NOAA National Weather Service (NWS) is responsible for overall management and execution of the Surface Weather program. The NWS is responsible for issuing warnings during life threatening weather situations and provides forecasts and warnings for the Nation, to protect life and property and enhance the national economy. NWS collects and disseminates weather data to the Nation.
2. NOAA Research (OAR) is responsible for conducting applied research in the upper and lower atmosphere to support NWS modernization for improvements in mesoscale observational data management, sophisticated weather warning and display systems, and numerical modeling. OAR collaborates with NWS to move scientific advances into operations.
3. NOAA Ocean Service (NOS) is responsible for monitoring and collection of positioning information and providing positioning information.
4. NOAA Satellites and Information (NESDIS) is responsible for scientific stewardship of the archive of NOAA's weather data and makes their holdings available to the public.
5. NOAA Councils and NOAA Offices (e.g., NOAA Observing Systems Council, Chief Information Officer, IT Council, Education, Research) are responsible for providing policy guidance and frameworks within which the Surface Weather program can operate to resolve issues in observations, data management, and outreach, and tool development.
6. NOAA General Counsel is responsible for providing legal assistance on interagency agreements, grants, treaties and other legal instruments.

B. External Agency/Organization Responsibilities

1. Federal Highway Administration – The FHWA is charged with broad responsibility of

ensuring that America's roads and highways continue to be the safest and most technologically up-to-date through programs aimed at improving the safety, mobility, and productivity of the Nation's roadways.

2. Transportation Research Board (TRB) – The TRB is a division of the National Research Council, and is an independent adviser to the federal government and others on scientific and technical questions aimed at promoting innovation and progress of the Nation's transportation system, through research.
3. American Meteorological Society (AMS) – The AMS promotes the development and dissemination of information and education on the atmospheric and related oceanic and hydrologic sciences and the advancement of their professional applications.
4. Intelligent Transportation Systems of America (ITSA) – The ITSA improves transportation by taking a leadership role in promoting research, deployment, and operation of intelligent transportation systems aimed at providing e and coordinating business and research leadership, and serving as a member-focused, member-driven, continuous-learning organization that delivers high-value member services.

6. END USERS OR BENEFICIARIES OF PROGRAM

1. State DOTs, including snow removal – the program allows State DOTs to make informed decisions regarding weather mitigation efforts and the positioning of resources
2. State Police – the program assists law enforcement with weather-related decisions affecting traffic flow and highway closures
3. Emergency Managers/FEMA/Homeland Security – the program will provide these authorities with surface observations and geospatial data for safe and effective access and egress routes during hazardous/emergency situations
4. Road Maintenance Authorities – facilitates the provision of information for allocation of personnel and resources
5. Private Sector –
 - a. the program provides a database of real-time and archived surface data to support business opportunities for vendors to develop route-specific forecasts and other value-added products and services to support safe and efficient surface transportation
 - b. the program provides transportation-sector industries (e.g., trucking, motor coach) basic observations for them to make more informed decisions regarding operations and planning
6. Academia and Research Organizations– the program provides a database of real-time and archived surface data to support research efforts
7. General Public – the program provides observations and forecasting applications to support operational products and education/outreach initiatives
8. Recreation/Tourism – the program facilitates the provision of information to travelers for decision making enroute and/or at destination
9. Media – the program facilitates the provision of information for broadcast or print application, including the real time dissemination of warning or significant weather information.

